IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Evgeniya Freydina, *et al.*
Serial No.:	10/712,685
Confirmation No:	9109
Filed:	November 13, 2003
For:	WATER TREATMENT SYSTEM AND METHOD
Examiner:	Joseph W. Drodge
Art Unit:	1797

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APPELLANTS' REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

This Reply Brief is submitted in response to the Examiner's Answer (hereinafter "Answer") mailed January 30, 2008 in the above-referenced patent application.

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I. Reply Brief Identification

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II. <u>Status of Claims (37 C.F.R. § 41.37(c)(1)(iii))</u>

Claims 1-22 were originally filed in this application.

Claims 23-26 were submitted but not entered.

Claims 2, 21, and 23-26 were previously canceled without prejudice or disclaimer.

Claims 27-32 were added during prosecution of this application.

Independent claims 1, 11, 17, and 22 along with dependent claims 3-10, 12-16, 18-20, and 27-32 are pending in this application.

Each of pending claims 1, 3-20, 22, and 27-32 was rejected in a final Office Action dated May 16, 2007.

Appellants appeal the rejections of claims 1, 3-20, 22, and 27-32. A copy of the appealed claims as pending is attached as a Claims Appendix. The Claims Appendix is identical to that which accompanied Appellants' Appeal Brief filed on December 17, 2007. No new amendments to the claims are presented in this paper.

The status of the claims is as follows:

A. Claims 1, 3, and 8-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hark in U.S. Patent No. 4,808,287 (hereinafter "Hark") in view of Batchelder *et al.* in U.S. Patent No. 6,126,805 (hereinafter "Batchelder"); and

B. Claims 4-7, 11-20, 22, and 27-32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hark in view of Batchelder and additionally in view of Tamura *et al.* in U.S. Patent No. 6,303,037 (hereinafter "Tamura"), and Rela in U.S. Patent No. 6,607,668 (hereinafter "Rela").

III. <u>Grounds of Rejection to Be Reviewed on Appeal (37 C.F.R. § 41.37(c)(1)(vi))</u>

The following grounds of rejection are being appealed:

A. Whether claims 1, 3, and 8-10 are unpatentable under 35 U.S.C. § 103(a) over Hark in view of Batchelder.

B. Whether claims 4-7, 11-20, 22, and 27-32 are unpatentable under 35 U.S.C. § 103(a) over Hark in view of Batchelder, Tamura, and Rela.

IV. <u>Argument (37 C.F.R. § 41.37(c)(1)(vii))</u>

Appellants respectfully request that the final rejections of claims 1, 3-20, 22, and 27-32 be reversed in view of the following remarks submitted in furtherance of Appellants' Appeal Brief filed on December 17, 2007. Each of these claims, as presented, is allowable.

A. Discussion of the Prior Art

Please refer to the discussion of the Prior Art in Appellants' Appeal Brief filed on December 17, 2007.[1]

B. Claims 1, 3, and 8-10 would not have been obvious under 35 U.S.C. § 103(a) over Hark in view of Batchelder

Claims 1, 3, and 8-10 would not have been obvious to one having ordinary skill in the art over Hark in view of Batchelder for at least the reasons discussed in Appellants' Appeal Brief and those presented herein in response to the Examiner's Answer.

In Hark's water purification process, potable water from a municipal supply is treated to remove suspended solids, organic and inorganic dissolved solids, dissolved carbon dioxide gas and metal contaminants to produce ultra-pure water. The process involves pre-filtration of the water; and activated carbon filtration, secondary guard filtration, and double reverse osmosis ("RO") treatment of the water. An electrodialysis unit is used to further remove impurities in the water. (Hark at Abstract.) Hark explains that 96 % of the impurities in the incoming water stream are removed in a first RO system, and 96 % of the impurities in the outlet stream from the first RO system are removed in a second RO system. (Hark at column 2, lines 49 *et seq.*) Also, an electrodialysis unit is used as a polishing device to produce ultra-pure water.

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[1] At pages 13-22 of Appellants' Appeal Brief.

Batchelder provides improved electrochemical devices that purport to be capable of operating at high current densities and where particular electroactive materials are incorporated to balance the water splitting at the anion and cation membranes. At Abstract, for example, Batchelder discloses electrodialysis stacks with any of:

(a) (1) cation exchange membranes having ion exchange groups that are predominantly sulfonic acid groups and a minor amount of weakly acidic and/or weakly basic groups, or (2) membranes which are selective to monovalent cations and cation exchange granules selective to monovalent cations in diluting compartments;

(b) (1) anion exchange membranes having as ion exchange groups only quaternary ammonium and/or quaternary phosphonium groups and substantially no primary, secondary, and/or tertiary amine and/or phosphine groups, or (2) membranes which are selective to monovalent anions and anion exchange granules selective to monovalent anions in diluting compartments; and

(c) in diluting compartments, (1) anion exchange granules selective to monovalent anions, or cation exchange granules selective to monovalent cations, (2) cation exchange granules having a predominant amount of sulfonic acid exchange groups and a minor amount of weakly acidic and/or weakly basic groups, or (3) anion exchange granules consisting of organic polymers having only quaternary ammonium and/or quaternary phosphonium anion exchange groups and almost no primary, secondary and/or tertiary amine and/or phosphonium groups.

As noted in Appellants' Appeal Brief, the rejection of claims 1, 3, and 8-10 is improper for failing to provide a *prima facie* case of obviousness because no valid motivation has been presented to modify the system disclosed by Hark and incorporate the disclosure of Batchelder and because, even if the references could have been combined, the resultant combination would fail to disclose each and every recited element. 35 U.S.C. § 103(a), MPEP §§ 2141, 2142.

In the Answer, however, the examiner states that each of claims 1, 3, and 8-10 requires that "the electric current is maintained below a limiting current density to suppress

hydroxyl ion generation."[2] The examiner speculates that because "Batchelder teaches that EDI-containing water treatment systems are operated near or below the limiting current density[,]" "to mitigate the precipitation and deposition of minerals," the reference allegedly discloses "reducing 'water splitting' or formation of hydroxyl ions." (Citing Batchelder at column 1, line 62-column 2, line 19 and at column 4, line 42-column 5, line 2.)

Contrary to the examiner's conclusion, the cited passages do not disclose operation under conditions of either reduced water splitting or formation of hydroxyl ions. Batchelder discloses anion surfaces which exhibit "reduced water splitting … at currents near or above the … limiting current," (see Batchelder at column 5, lines 43-45) but does not suggest operating at or below such a limiting current. Batchelder teaches that "the limiting current density for anion exchange membranes is roughly 50 % greater than that for cation exchange membranes." (See Batchelder at column 4, lines 55-57). Instead, at column 1, lines 62 *et seq.* (with emphasis added), Batchelder explicitly discloses that "[i]n order to <u>maximize</u> the utilization of ED apparatus it is <u>desirable</u> to operate at the <u>highest possible</u> current densities." Batchelder thus does not disclose or suggest applying an electrical current <u>below a limiting current density</u>.

At column 4, lines 42 *et seq.* (with emphasis added), Batchelder explains that "when the limiting current density during electrodialysis … of conventional cation exchange membranes is <u>exceeded</u> there is very little 'splitting' of water into hydrogen and hydroxide ions," and that "if the anion exchange membranes contain only quarternary ammonium… it is found that the amount of water splitting is about the same as for conventional… cation exchange membranes." (See Batchelder at column 5, lines 12-15.) The gravamen of the examiner's argument is thus unsupported because, based on the cited passage, Batchelder

[2] Applicants disagree that each of claims 1 and 8-10 requires that "the electric current is maintained below a limiting current density to suppress hydroxyl ion generation." Independent claim 1 and dependent claims 8-10 recite "suppressing hydroxyl ion generation to produce treated water" but do not require maintaining the electric current below a limiting current density.

suggests operating at current densities that *exceed* the limiting current density, as long as the relative anion and cation water splitting is equalized.[3]

At page 6 of the Answer, the examiner improperly postulates that Batchelder "explicitly teaches operating the anion exchange membranes of an electrodialysis or electrodeionization device to have reduced water-splitting capacity and to operate the cation exchange membranes of such device to have a relatively limited water-splitting capacity compared to enhanced water splitting membranes, with such objectives realized by limiting current densities." As noted above however, Batchelder expressly seeks to increase the current in order to exceed the device limiting current density. The examiner's rationale is inconsistent with Batchelder's express teaching and the conclusion that Batchelder's objectives are realized by limiting current densities is plainly illogical. Instead, a more thoughtful reading of Batchelder would have informed the ordinarily skilled artisan that the reference provides anion exchange membranes, cation exchange membranes, or electroactive media having particular functional groups so that the devices can be operated to have the highest possible current densities.

At page 24 of the Answer, the examiner mischaracterizes Batchelder as teaching that "EDI units are operated at 'the highest possible current densities' that approach 'the limiting current density[']' (column 1, lines 65-67)." The examiner then deduces that "hydroxyl ion generation and water-splitting are suppressed from what these parameters would be at a theoretically higher current density." The examiner apparently does not understand that the limiting current density is that current whereby impurity ions are removed at a rate such that

[3] The examiner speculates that Batchelder seeks to "mitigate the precipitation and deposition of minerals" by reducing water splitting or formation of hydroxyl ions. Instead, Batchelder teaches that in conventional devices, "[t]his problem has been addressed by chemical or IX softening of the feed waters or the concentrating streams; by adding acid to the feed waters or the concentrating streams (with or without decarbonation) or by regularly reversing the direction of passage of the electric current…." (See Batchelder at column 2, lines 10-15); and in the purported invention, provides membranes that exhibit "reduced water splitting during extended operation with clean water at currents near or above the Cowan-Brown limiting current." (Batchelder at column 5, lines 38-45.)

the boundary layer is completely devoid of impurity ions and thus no further impurity ion transport may occur. Thus, operation at currents exceeding the limiting current density must split water to form hydroxyl and hydrogen ions and this formation is in direct proportion to the increase in current. Thus no relative decrease in hydroxyl ion generation is possible. Instead, the cited passage states that "as the limiting current density is approached it is found that water is dissociated ('split') into hydrogen ions and hydroxide ions at the interfaces between the (conventional) anion exchange ('AX') membranes and the diluting streams." A careful reading of Batchelder informs the reader that a limitation of ED devices is the limiting current density, which provides an aggregate representation of the dynamic activity of the diffusing, transporting species in the device. (Batchelder at column 1, lines 37-62.) The examiner thus fails to understand that the term "limiting current density" is a characteristic that Batchelder seeks to exceed and that in exceeding that current density, hydroxyl ion formation is increased in direct proportion to the increase in current (by providing the various membranes and/or electroactive media having the above-noted functional groups) rather than an indication of the point of water splitting.

The examiner notes that none of the claims quantify or define a specific degree of hydroxyl ion suppression or quantify or recite a range of current density or limiting current density. The phrase "limiting current density" is a term in the art and is quantifiable, as noted by Batchelder at column 4, lines 42-45, by utilizing the Cowan-Brown techniques disclosed in *Ind. Eng. Chem.*, 51, 1445 (1995).[4] Thus, one skilled in the art would be able to quantify a limiting current density for an apparatus and would therefore understand the phrase "below a limiting current density through the electrochemical device."

Clearly, an ordinarily skilled artisan, relying on Hark and Batchelder, would not have suppressed hydroxyl ion formation but, instead, would have been motivated to split water. The *prima facie* case of obviousness is therefore improper because there has been no

[4] Cowan and Brown, "Effect of Turbulence on Limiting Current in Electrodialysis Cells."

reasoned explanation, suggestion, or motivation presented that would have led one skilled in the art to combine Hark and Batchelder and result in the invention in the manner claimed.

Further, the *prima facie* case of obviousness is also defective because, even if the references could have been combined, the alleged combination would fail to disclose each and every element in the manner recited in independent claim 1.

In particular, Hark and Batchelder fail to disclose a method of producing treated water comprising "introducing water from a point of entry into a reservoir and an electrochemical device" as recited in independent claim 1. Hark discloses storing treated water but does not disclose introducing water from a point of entry into a reservoir and also into an electrochemical device. Batchelder is silent as to storing water from a point of entry or even as to storing treated water. Therefore, any alleged combination of Hark and Batchelder could not result in a method of treating water comprising each and every element in the manner recited in independent claim 1.

At page 25 of the Answer, the examiner states that "the claims do not limit what is encompassed by the system containing the reservoir or preclude the electrochemical device from being a component of a larger system also encompassing the reservoir system, or the electrochemical device being either upstream or downstream of a system of components including a reservoir."

Appellants maintain that the cited references do not disclose introducing water from a point of entry into a reservoir system and an electrochemical device, as recited in independent claim 1. Indeed, the examiner's argument is non-responsive because it speculates that the open-ended nature of the claim renders it vulnerable, regardless of the deficiencies of the applied references.

Dependent claims 3 and 8-10 depend from independent claim 1. These dependent claims also would not have been obvious over Hark and Batchelder for at least the same reasons discussed above.

Further, Hark and Batchelder fail to disclose or suggest a method of producing treated water comprising storing at least a portion of the treated water in a pressurized reservoir system. Hark at column 5, lines 38-50 does not disclose or suggest a pressurized reservoir or tank but instead explains that "[t]he permeate outlet stream from the second reverse osmosis unit 8 depressurizes via the deionization filters into the product storage tanks."[5] The examiner speculates that by virtue of the "reservoirs or tanks being maintained full of water," the reservoir must necessarily be pressurized. This specious conclusion, however, ignores the express disclosure of Hark that the permeate outlet stream from the second reverse osmosis unit 8 depressurizes via the deionization filters into the product storage tanks.

With respect to dependent claim 10, the examiner alleges that the figure of Hark "discloses EDI device units 1 and 2." Hark, however, does not disclose <u>electrodeionization</u> units but, instead, discloses <u>electrodialysis</u> devices.[6]

Therefore, the alleged *prima facie* case of obviousness over Hark in view of Batchelder is further defective because the references fail to disclose or suggest each and every element in the manner recited in dependent claims 3 and 8-10.

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[5] Notably, Hark discloses discharge pumps 23 and 25 downstream from storage 22 and 24 which would suggest to a person of ordinary skill in the art that the stored product water cannot be delivered based only on stored pressure, if any.

[6] Applicants note that the examiner improperly equates an electrodeionization device with an electrodialysis device. For example, at page 7 of the Answer, the examiner states that "Batchelder also teaches that current densities achievable are necessarily limited by operating parameters of the EDI unit including thickness, structure of and diffusion rates through the membranes of the EDI unit and salt concentrations (column 1, lines 38-67)." This passage of Batchelder, however, is explicitly directed to ED devices, *i.e.*, electrodialysis devices. ED devices structurally differ from EDI apparatus as noted by Batchelder at column 1, lines 15-21. The latter (electrodeionization devices) may be considered to be filled cell ED (electrodialysis) devices.

C. Claims 4-7, 11-20, 22, and 27-32 would not have been obvious under 35 U.S.C. § 103(a) over Hark in view of Batchelder, Tamura, and Rela

Dependent claims 4-7 and 28 would not have been obvious over Hark in view of Batchelder and in further in view of Tamura and Rela. These claims depend directly or indirectly from independent claim 1 which, as noted above, would not have been obvious over Hark in view of Batchelder.

Tamura is strictly relied upon for teaching the regulation of pH. (Examiner's Answer at page 26.) Rela is relied upon for control of an EDI device responsive to at least one measurement. (Examiner's Answer at page 25.) Because Tamura and Rela fail to remedy the above-noted deficiencies of Hark and Batchelder with respect to independent claim 1, dependent claims 4-7 and 28 would also not have been obvious over Hark in view of Batchelder, Tamura, and Rela.

Independent claim 11 would also not have been obvious over Hark in view of Batchelder because the references fail to disclose or suggest each and every element in the manner recited.

At page 10 of the Answer, the examiner mischaracterizes that Batchelder "teaches EDI-containing water treatment systems are operated near or below the limiting current density." As noted above, however, Batchelder discloses that a limitation of ED devices relates to its limiting current density and that "to maximize the utilization of ED apparatus it is desirable to operate at the highest possible current densities." (Batchelder at column 1, lines 62-64.) The examiner thus illogically concludes that Batchelder discloses limiting the current density to "mitigate the precipitation and deposition of minerals to [sic] contact surfaces." Instead, a person of ordinary skill in the art would read Batchelder as disclosing anion exchange membranes, cation exchange membranes, and media having desirable functional groups that provide the highest possible current densities so that "the require[d] water splitting occurs at bipolar junctions" of such components. (Batchelder at column 8, lines 17 *et seq.*)

Thus, because there is no reasoned explanation that provides a teaching or suggestion for one skilled in the art to incorporate the disclosure of Batchelder into the disclosure of Hark, the *prima facie* case of obviousness of independent claim 11 is improper.

At page 12 of the Answer, the examiner postulates that because "Rela teaches at least one reservoir tank 12 that is upstream of reverse osmosis module 46 and EDI module 54 and other pre-treatment units and Tamura teaches a discrete storage reservoir tank 3 that is fluidly coupled between an upstream pretreatment activated carbon module 2 and downstream feed pump 5 and reverse osmosis unit 6," it would have been obvious "to have facilitated the storing of water upstream of the reverse osmosis and EDI units or modules that occurs in Hark, by providing a reservoir tank, as taught by Rela and Tamura, in order to facilitate maintaining of [sic] optimum pressures upstream of the reverse osmosis units."[7]

Tamura, however, discloses that water in feed water tank 3 is introduced into reverse osmosis module 6 but does not disclose or suggest introducing a portion of water from a reservoir into an electrochemical device as recited in independent claim 11. (Tamura at column 4, lines 56 *et seq.*) Rela explains that pre-filter module 10 utilizes a backwashing feature, to clean the ceramic elements therein, which "entails passage of a flow of a high velocity water stream from a pure water reservoir 12 in a direction opposite to the direction of the flow of supply water through the tubular element housings." (Rela at column 5, line 66-column 6, line 8.) Rela cannot disclose or even suggest introducing water from a reservoir into an electrochemical device because the reference emphasizes that the flow of water is an <u>opposite</u> direction relative to the flow of supply water through the treatment system. Thus, even the references could have been combined, the *prima facie* case of

[7] This assertion flies directly against the examiner's explanation at page 26 which states (with emphasis added):

> "With regard to independent claim 4-7,11-20,22 and 27-32, [sic] argument concerning whether Tamura's teaching of regulation of pH of the of the concentrate from a reverse osmosis device repairs the rejection of claims 1 and 11 over Hark in view of Batchelder and Rela are not pertinent to other limitations of the claims. Tamura is <u>strictly</u> relied upon for teaching the regulation of such pH."

obviousness is defective because the resultant combination would still fail to disclose a method of producing water comprising introducing a portion of the water from the reservoir into an electrochemical device.

Dependent claims 12-16 and 27 depend from independent claim 11 and, for at least the same reasons noted above, also would not have been obvious over the disclosures of the cited references.

Therefore, dependent claims 4-7, 12-16, and 27 would also not have been obvious over Hark in view of Batchelder and further in view of Tamura and Rela.

Independent claim 17 is directed to a water treatment system comprising a reservoir system fluidly connected to a point of entry, the reservoir system comprising a plurality of zones having water contained therein with differing water quality levels; an electrochemical device fluidly connected to the point of entry and the reservoir system; a power supply for providing an electrical current to the electrochemical device; and a controller for regulating the electrical current below a limiting current density.

The alleged *prima facie* case of obviousness of independent claim 17 is defective because, as noted above, none of Hark, Batchelder, Tamura, and Rela discloses or suggests a water treatment system comprising a controller for regulating the electrical current provided to an electrochemical device at below a limiting current density of the device. Again, the examiner misunderstands Batchelder as allegedly reducing water splitting; instead, the reference discloses electroactive materials that promote the required water splitting. (See Batchelder at, for example, column 8, lines 17 *et seq.*)

The *prima facie* case of obviousness of independent claim 17 is also defective because none of the references discloses or suggests a reservoir system fluidly connected to a point of entry, wherein the reservoir system comprises a plurality of zones having water contained therein with differing water quality levels.

Dependent claims 18-20 and 29-32, which depend directly or indirectly from independent claim 17, also would not have been obvious over Hark in view of Batchelder and further in view of Tamura and Rela for at least the same reasons noted above.[8]

The references fail to disclose or suggest a distribution system fluidly connected downstream of the reservoir system and to a point of use, a pressurized reservoir system, a controller configured to regulate delivery of water from at least one of the zones (of the reservoir system) to at least one point of use, and a controller that is configured to receive at least one signal representative of at least one water quality of at least one zone (of the reservoir system) and regulate the electrical current based at least partially on the at least one signal.

Independent claim 22 would also not have been obvious over Hark in view of Batchelder and further in view of Tamura and Rela because the references fail to disclose or suggest each and every element in the manner recited.

As noted above, the alleged *prima facie* case of obviousness over Hark and Batchelder is improper because one skilled in the art would not have controlled an electric current applied to an electrochemical device utilized for water treatment in the manner claimed. Tamura and Rela also fail to disclose or suggest this aspect of the invention.

The *prima facie* case of obviousness is also defective because none of the references discloses or suggests a method of facilitating water treatment comprising providing a pressurizable reservoir system fluidly connectable downstream of a point of entry and further fluidly connectable upstream of a distribution system that is fluidly connected to at least one point of use, and providing an electrochemical device fluidly connected downstream of the pressurizable system.

Tamura discloses a reservoir system. There is, however, no explicit disclosure that would lead one skilled in the art to recognize that the tank would necessarily be pressurizable. Indeed, in the figures, Tamura depicts an open top tank which implies that the

[8] Applicants note that no reply answer has been presented with respect to dependent claim 32.

tank cannot necessarily be pressurizable. Further, Tamura discloses a reverse osmosis device fluidly connected downstream of reservoir system but fails to disclose or suggest providing a water treatment system comprising an electrochemical device fluidly connected downstream of a pressurizable reservoir system. Thus, the *prima facie* case of obviousness of claim 22 over these references is improper.

D. Conclusion

For the reasons provided above, each of the rejections is improper and should be reversed. Appellants respectfully request reversal of the rejections and issuance of a Notice of Allowance.

V. Claims Appendix: Claims as Appealed (37 C.F.R. § 41.37(c)(1)(viii))

Listing of Claims

1. (Previously Presented) A method of producing treated water comprising:

introducing water from a point of entry into a reservoir system and an electrochemical device;

removing at least a portion of any undesirable species from the water in the electrochemical device while suppressing hydroxyl ion generation to produce treated water;

storing at least a portion of the treated water in the reservoir system; and

distributing at least a portion of the water from the reservoir system to a point of use.

2. (Canceled)

3. (Original) The method of claim 1, wherein removing the at least a portion of any undesirable species while suppressing hydroxyl ion generation comprises applying an electrical current below a limiting current density.

4. (Previously Presented) The method of claim 1, further comprising measuring at least one water property of at least a portion of the water in the reservoir system.

5. (Original) The method of claim 4, further comprising adjusting an operating parameter of the electrochemical device based on the measured water property.

6. (Original) The method of claim 4, further comprising distributing at least a portion of the treated water to a point of use based on the measured water property.

7. (Original) The method of claim 4, further comprising adjusting a flow rate of the water into the electrochemical device based on the measured water property.

8. (Previously Presented) The method of claim 1, wherein the act of storing at least a portion of the treated water comprises storing at least a portion the treated water in a pressurized reservoir system.

9. (Original) The method of claim 8, wherein storing the treated water in the pressurized reservoir system comprises storing the treated water in a treated water zone of the pressurized reservoir system.

10. (Original) The method of claim 1, wherein the electrochemical device comprises an electrodeionization device.

11. (Previously Presented) A method of producing treated water comprising:

introducing water from a point of entry into a reservoir;

introducing a portion of the water from the reservoir into an electrochemical device;

applying an electrical current below a limiting current density through the electrochemical device to promote removal of any undesirable species from the water and produce treated water; and

maintaining the electrical current below the limiting current density to produce the treated water.

12. (Previously Presented) The method of claim 11, further comprising storing the treated water in the reservoir.

13. (Previously Presented) The method of claim 12, further comprising measuring a water property of water in the reservoir.

14. (Original) The method of claim 13, wherein applying the electrical current comprises adjusting the electrical current based on the measured water property.

15. (Previously Presented) The method of claim 14, wherein introducing water from the point of entry into the reservoir comprises adjusting a water flow rate based on the measured water property.

16. (Original) The method of claim 15, further comprising distributing at least a portion of the treated water to a point of use.

17. (Previously Presented) A water treatment system comprising:

a reservoir system fluidly connected to a point of entry, the reservoir system comprising a plurality of zones having water contained therein with differing water quality levels;

an electrochemical device fluidly connected to the point of entry and the reservoir system;

a power supply for providing an electrical current to the electrochemical device; and

a controller for regulating the electrical current below a limiting current density.

18. (Original) The system of claim 17, further comprising a distribution system fluidly connected downstream of the reservoir system and to a point of use.

19. (Original) The system of claim 17, further comprising at least one water property sensor.

20. (Original) The system of claim 19, wherein the electrochemical device comprises an electrodeionization device.

21. (Canceled)

22. (Previously Presented) A method of facilitating water treatment comprising:

providing a pressurizable reservoir system fluidly connectable downstream of to a point of entry and further fluidly connectable upstream of a distribution system fluidly connect to at least one point of use;

providing an electrochemical device fluidly connected downstream of the pressurizable reservoir system;

providing a power supply for providing an electrical current to the electrochemical device; and

providing a controller for regulating the electrical current below a limiting current density.

23-26. (Canceled)

27. (Previously Presented) The method of claim 11, further comprising a step of providing treated water mixed with water from the point of entry.

28. (Previously Presented) The method of claim 10, further comprising measuring a plurality of water quality levels of the water in the reservoir system.

29. (Previously Presented) The system of claim 17, wherein at least a portion of the reservoir system is pressurized.

30. (Previously Presented) The system of claim 29, wherein the controller is further configured to regulate delivery of water from at least one of the zones to at least one point of use.

31. (Previously Presented) The system of claim 17, wherein the controller is further configured to receive at least one signal representative of at least one water quality level of at least one zone and regulate the electrical current based at least partially on the at least one signal.

32. (Previously Presented) The method of claim 22, further comprising a step of connecting the controller to at least one water property sensor disposed in the pressurizable reservoir system.

VII. Conclusion

For the reasons provided above, the rejections are improper and should be reversed. Appellants respectfully request reversal of the rejections and issuance of a Notice of Allowance.

If there is any additional fee occasioned by this filing, including an extension fee that is not covered by an accompanying payment, please charge any deficiency to Deposit Account No. 50/2762, Ref. No. I0168-708019.

Respectfully submitted,
Evgeniya Freydina, et al., Appellants

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